

REMARKS

Claims 60 and 69 are amended. Claim 65 is cancelled. Claims 60-64 and 66-72 are pending in the application.

Each of claims 60-72 stand rejected under 35 U.S.C. § 103 as being unpatentable over Dunlop, U.S. Patent No. 5,590,389 or over Dunlop in view of Weber, U.S. Patent No. 4,786,469. The Examiner is reminded by direction to MPEP § 2143 that a proper obviousness rejection has the following three requirements: 1) there must be some suggestion or motivation to modify or combine reference teachings; 2) there must be a reasonable expectation of success; and 3) the combined references must teach or suggest all of the claim limitations. Claims 60-64 and 66-72 are allowable over Dunlop, individually or as combined with Weber, for at least the reason that the references fail to disclose or suggest each and every limitation in any of those claims.

As amended, each of independent claims 60 and 69 recite a physical vapor deposition target consisting essentially of an alloy of copper and at least one of Sr, Ba and Se. Each of these independent claims further indicates that the total amount of alloying elements is from less than 1.0 at% to 0.001 at%. Independent claim 69 additionally recites optional inclusion of Sc in addition to the at least one member selected from the recited group. Dunlop discloses targets comprising a metal which can include aluminum, copper, titanium, silicon, zirconium, tungsten, tantalum, platinum, gold, niobium, rhenium, scandium, cobalt, molybdenum and hafnium (col. 3, ll. 65 through col. 4, ll. 14). Dunlop does not disclose or suggest an alloy comprising an element selected from the group consisting of Sr, Ba and Se. Further, Dunlop does not disclose or suggest the recited target consisting essentially of an alloy of copper and one or more of these elements present at a total concentration of from less than 1.0 at% to 0.001 at%. Accordingly,

independent claims 60 and 69 are not rendered obvious by Dunlop.

Weber discloses a copper-based material which contains each of four components (a), (b), (c) and (d) (col. 2, ll. 2-22 and the abstract). Weber indicates that component (a) can be titanium and/or zirconium and must be present for effective refinement (col. 2, ll. 3-8 and 41-47). Because Weber specifically indicates that titanium and/or zirconium must be present in the copper-based materials of the invention, such disclosure does not disclose or suggest a copper material having an absence of purposefully added titanium and/or zirconium. Weber further discloses that the amount of component (a) should be from 0.01 to 0.1%, by mass (col. 3, ll. 23-33). The Weber requirement of from 0.01 to 0.1% of at least one of titanium and/or zirconium with zirconium being more effective than titanium (col. 2, ll. 49-50) does not suggest the recited copper alloy which consists essentially of copper and specifically recited elements from a group which does not include titanium or zirconium. In fact, the specific requirement of titanium and/or zirconium for effective grain refinement as disclosed in Weber teaches away from a copper alloy which does not purposefully include from 0.01 to 0.1% of titanium and or zirconium. Accordingly, Weber cannot properly be combined as a basis of a 103 rejection as suggesting the recited copper materials consisting essentially of copper alloyed with from less than 1.0 at% to 0.001 at% of other elements comprising at least one of Sr, Ba and Se.

The Examiner indicates at page 6 of the present action that applicant has a burden of showing the basic and novel characteristic of the claimed composition "i.e. a showing that the introduction of these components would materially change the characteristics of applicant's composition" (referring to the use of the expression "consisting essentially of" which limits the scope of the claim to "specified ingredients of those that do not materially affect the basic and novel characteristics of a composition"). Even if Weber where

available as a proper basis of a 103 rejection, Weber itself provides the showing of materiality since Weber indicates that one or both of titanium and/or zirconium is required in the grain refined copper-based metals, indicating that an absence of titanium and zirconium would render the Weber invention unsuitable for its intended purpose.

For the reasons discussed above, independent claims 60 and 69 are allowable over the cited combination of Dunlop and Weber. Claim 65 is cancelled. Dependent claims 61-64, 66-68 and 70-72 are allowable over the cited combination of Dunlop and Weber for at least the reason that they depend from corresponding allowable base claims 60 and 69. Accordingly, applicant respectfully requests formal allowance of pending claims 60-64 and 66-72 in the Examiner's next action.

Respectfully submitted,

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